

**CLOSURE COVER**  
(As Amended)

**Background**

This application claims the benefit of PCT Application No. PCT/DE2003/01861 which was filed on June 5, 2003 (published as WO2004/000632), which in turn claims priority of German Application No. GE 202 09 513.4 which was filed on June 19, 2002.

The exemplary embodiments provided herein relate to a closure cover or closing lid, comprising two plastic components for tight closing of an opening in a support plate, for example a motor vehicle body. The closure cover includes a dish-like shaped cover or lid element and an insert element.

This type of closing lid, comprising two plastic components is already known from the state of the art (DE 195 46 160 A1). The lid element in this arrangement consists of a core component made of hard material, whereas a sealing element, connected with the lid element is made of an outer component produced of a softer material. The sealing element can be glued together with a support plate, at least at the outer edge.

Further state of the art concerns a closing lid for tight sealing of an opening in a support plate and is described in DE 43 27 545 A1. Here, the core component consists of a hard material having a shell component being provided of softer material. The shell component encloses the core component. The shell component is cementable at its outer edges with the support plate.

In contrast thereto, the exemplary embodiments describe a closure cover of the initially mentioned type, which provides, with simple installation and without use of any gluing procedure, tight sealing of an opening in a support plate. According to the invention, an insert element consisting of a hard component, presents a center-region, which, in mounted state of the closing lid, acts upon an elastic counter region of the lid element. The lid element and the insert can be locked together in the mounted state.

The result is a simply designed closure cover with the insert comprising a hard plastic component which can be locked together with the lid element. Due to the

locking, the lid element consisting of a softer material is jammed in such manner in an opening (i.e. to be closed opening) of a support such that tight closure is provided.

In a further embodiment of the invention, the elastic counter-region of the lid element can present a plate, positioned opposite the center region of the insert, which is connected with a collar of the lid element by means of a thinner conical segment. In addition, according to another characteristic of the invention, the center region of the insert can be designed as a hollow cylinder, with the hollow cylinder being connected to a covering plate of the insert.

Beneficial use is made, relative to the lid element and the insert of a locking connection with a counter-locking device, whereby it is possible, to first join the two parts provisionally and to only effect the mounted state after insertion into a to be closed support plate. In such manner, the insert consisting of a hard component is pressed into the elastic material and locked together with same such that tight closing of the support opening is provided.

Beneficial further developments are apparent from the dependent claims. In the following, the invention is described in more detail by means of exemplary embodiments represented in the drawings.

#### Brief Description of the Drawings

The drawings depict as follows:

Fig. 1 a schematic center section through a lid element and an insert element of a closure cover before the preliminary installation, according to a first embodiment;

Fig. 2 a bird's eye view on the lid element according to Fig. 1;

Fig. 3 a magnified representation in the region X according to Fig. 1;

Fig. 4 a perspective view of the lid element according to Fig. 1;

Fig. 5. the closure cover of Fig. 1 in pre-mounted position;

Fig. 6. the closure cover according to Fig. 5 in mounted position;

Fig. 7. a second embodiment of a closure cover in schematic center section; and,

Fig. 8 a third embodiment of a closure cover in schematic center section.

### Detailed Description

Fig. 1 depicts a closure cover or closing lid which comprises two plastic components. The closing lid serves, for example, for tight closure of an opening 38 in a support plate 35, for example, a motor vehicle body represented in Fig. 5 and 6.

The closing lid consists of a dish-like shaped lid element 1 and an insert element 2. The insert element 2 can be made of a hard component and includes a center region 10, which, in mounted state of the closing lid, acts upon a plate 15 in the shape of an elastic counter-region 20 of the lid element 1. The elastic counter-region 20 of the lid element 1 is connected to a collar 21 of the lid element 1 by means of a thinner conical section 18.

In addition, one can recognize from Fig. 1 that relative to the insert element 2, the center region 10 can be configured as a hollow cylinder 12. The hollow cylinder 12 can be connected to a cover plate 14 of the insert element 2. Between the cover plate 14 of the insert element 2 and the hollow cylinder 12 there are provided a number of recesses 16. The recesses 16 can be around the circumference.

The lid element 1 includes a circumferential collar 21 and cover region 25, with an intermediate ring 22 therebetween. The cover region 25 in a mounted state of the closing lid, acts upon the support plate 35 in the region of opening 38. In addition, it is to be appreciated from Fig. 1 and 3, that the intermediate ring 22 presents a locking region or device 30, which comprises, for example, a number of stop teeth 30', distributed around the circumference. The collar 21 of the lid element 1 includes a plurality of inwardly extending cross-pieces 65 distributed around the circumference. The insert element 2 includes a collar 40, having two successively positioned counter-stop devices 31 and 32 extending around an outside circumference.

Referring to Fig. 5, a pre-installation or pre-mounting position is therein shown. The insert element 2 can be pressed into the lid element 1 in the direction of arrow 1 until the locking region 30 of the lid element 1 embeds itself into a counter-locking device or region 31 of the insert element 2. As shown in Fig. 5 and 6, the locking device 30 comprises a circumferential ring. In this state it is possible to install the closing lid consisting of the two units 1 and 2 in the opening 38 of the support plate 35. After insertion, the insert element 2, as best shown in Fig. 6, can, in turn, be pressed in the

direction of arrow I into the lid element 1 until the locking device 32 embeds itself into the locking device 30. In this movement, the hollow cylinder 12 presses upon plate 15 and moves same in arrow direction II, due to the elastic cone-shaped intermediate region 18. Consequently, collar 21 of the elastic lid element 1 becomes deformed, as a result of which the adjacent region of the opening 38 of the support plate 35 is acted upon, thus assuring tight closure of the opening 38.

The cover plate 14 of the insert element 2 protrudes beyond collar 40. In the mounted position, according to Fig. 6, the cover plate 14 is engaged in a recess 50 of the lid element 1.

Referring to Figure 7, a second embodiment of a closure cover is therein illustrated. In this embodiment, like components are identified by like numerals with a single primed (') suffix and new components are identified by new numerals.

A hollow cylinder 12' includes a locking region device 51 extending circumferentially inward. The locking region 51 can be embedded in two successively positioned counter-locking devices 53 and 55 of a peg 60. The peg 60 can be located centrally at plate 15' of the lid element 1' and extends transverse to thereto. As described above, two positions can be assumed, namely the pre-mounting and the final mounting position, similar to the representation according to Fig. 5 and 6.

Referring to Fig. 8, a third embodiment of a closure cover is there illustrated. In this embodiment, like components are identified by like numerals with a double primed (") suffix and new components are identified by new numerals. An insert element 2", can include a hard component having a center region 64, which, in mounted state of the closing lid, acts upon an elastic counter-region 20", namely plate 15" of the lid element 1". According to this embodiment, the insert element 2" includes a circumferential thin location 66. The center region 64, while being pressed in the direction of the arrow I, snaps inward and thus acts upon the elastic counter-region 20" of the lid element 1" thereby locking insert element 2" in lid element 1". A stop region 68 can be positioned both in a pre-mounted as well as in a mounted state, in a counter-locking device or region 70 of the lid element 1". The aforementioned embodiments comprising a lid element and an insert element produce a tight closure. The various embodiments described, in simple fashion, close an opening of a support plate. The entire unit,

initially, is insertable during pre-mounting into the opening and then with final mounting, closing of the opening achieved in a functionally secure manner.